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It Is As It Does: Genital Form and Function in Sex Reassignment Surgery

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Abstract Surgeons who perform sex reassignment surgeries (SRS) define their goals and evaluate their outcomes in terms of two kinds of results: aesthetic and functional. Since the neogenitals fashioned through sex reassignment surgeries do not enable reproductive function, surgeons must determine what the function of the genitals is or ought to be. A review of surgical literature demonstrates that questions of what constitute genital form and function, while putatively answered in the operating room, are not answerable in the discourses of clinical evaluation used to define them. When the genitals—the word itself derived from the Latin *genitas* meaning to beget—are not reproductive, the question of their function shifts away from the biological and into other registers: pleasure, intimacy, sociality. As condensed sites of meaning and meaning-making around which selves, affects, resources, anxieties and futures are organized, the genitals signify in excess of the categories of "aesthetic" and "function" that surgeons use to assess them. Not reducible to either aesthetics or function, but constitutive of them both, this excess appears in surgical texts in the form of imagined futures of social and sexual engagement and demonstrates a powerful means by which properly sexed bodies are created.

Keywords Sex reassignment surgery · Transsexual embodiment · Surgical practice · Expertise

In 2004, plastic surgeon Dr. Pierre Brassard appeared on the Canadian Broadcasting Center's news magazine program, *The Fifth Estate*.[1] His private clinic in Montreal performs roughly 250 sex reassignment surgeries (SRS) per year.[2] When asked, "What are you capable of doing?" in terms of male-to-female genital reconstruction, Brassard replied that, "An average result to the best result can fool you [referring to the female interviewer], him [gesturing toward the ostensibly male cameraman], any doctor." Brassard's statement draws on three very different modes of knowing the female genitalia and pronounces his ability to "fool" them all. Framed by an assumption of heterosexuality, the woman, the man, and the doctor know, recognize and interact with the female genitals in different forms and in different capacities. No matter who you are or how you interact with or know the female genitals, no one can tell the difference between the "natural" and the "like natural" except the surgeon who knows the one

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and creates the other. While there are important critiques to raise here about the transsexual as a conniving and stealth figure who "fools," (Raymond 1979) as well as the inherent ability of the female genitals to ensnare and deceive (Neumann 1955), in this article I focus on how Brassard and other surgeons think this fooling takes place, on how they think the "like natural" is surgically achieved. The language of "natural" and "like natural" is ubiquitous in surgical literature on SRS and is presented as the goal of patient and surgeon alike. What comes to count as "natural" and "normal" requires elaboration.

Surgical literature about sex reassignment surgeries (SRS)[3] defines surgical goals and evaluates outcomes in terms of two kinds of results: aesthetic and functional. This division of form and function as two distinct but related modes of apprehending the body is certainly not unique to sex reassignment surgeries, but its constitution in this case is a particularly fraught one. Since the neogenitals fashioned through sex reassignment surgeries do not enable reproductive function, surgeons must determine what the *function* of the genitals is or ought to be. When the genitals—the word itself derived from the Latin *genitas* meaning *to beget*—are not reproductive, the question of their function shifts away from the biological and into other registers: pleasure, intimacy, sociality. As I argue in this essay, a review of surgical literature demonstrates that questions of what constitute genital form and function, while putatively answered in the surgical theater, are not answerable in the discourses of clinical evaluation used to define them. As condensed sites of meaning and meaning-making around which selves, affects, resources, anxieties and futures are organized, the genitals signify in excess of the categories of "aesthetics" and "function" that surgeons use to assess them. While unrepresentable in these terms, the felicity of the *social function* of the genitals is so vital to the project of SRS that it appears in these texts in the idiom of highly gendered future social interactions—in the locker room, the public restroom, the bedroom and indeed (some other) doctor's office. Imagined interaction in these scenes, sites, and locations constitutes a significant aspect of surgical evaluation. Surgeons know that it is in these scenes outside of the operating room where genital maleness and femaleness will be ratified.

Outside of clinical and/or pedagogical psychological texts (Brown 1996, Cohen-Kettenis and Gooren 1999, Istar Lev 2004), the great bulk of early social science literature on transsexualism and sex reassignment surgery can be characterized as attempting to understand the origin of the phenomenon (Benjamin 1966, Stoller, 1975) and as opposing or supporting the practice of SRS based on moral or ethical grounds. It is a focus on the abstract *idea* of transsexualism and SRS (i.e., that is it materially possible for a person to alter medically and permanently their secondary sex characteristics and that such an act constitutes a form of identity) that animates much of this literature rather than any critical assessment of the lived or material practices at issue. SRS and/or transsexualism often appear not as objects of investigation themselves but as exceptions meant to demonstrate general rules about (or proof of) socially constructed gender (Kessler and McKenna 1978, Butler 1990). Transsexualism—conceptualized both as a distinct kind of personhood and as a nosological category—and SRS as its accepted mode of treatment, have been declared unethical within rhetorics of mental health (Lothstein 1979, Restack 1979), feminism (Daly 1978, Raymond 1979), and as part of broader critiques of the medicalization of gender (Billings and Urban 1982, Hausman 1995). Turns to those same rhetorics are then sometimes used to support transsexualism and SRS as liberatory practices wherein dichotomous gender is held as inherently oppressive and *trans*-ing (of many kinds) is staged as a way out of this bind (Bornstein 1995, Butler 1990, Feinberg 1996, Moore and Whittle 1999).[4] More recent scholarship on transgenderism has moved away from these ethical questions and focused instead on the emergence of transgender as a social

and political category (Meyerowitz 2002, Prosser 1998, Valentine 2007) and the personal and social experiences of people who identify as transgender or transsexual (Costa 2007, Cromwell 1999, Namaste 2000, Roen 2001, Rubin 2003). Ethnographic work outside of the Euro-American context has also aimed to complicate the constitution of the categories of transgender and transsexual as inadequate to gender variations cross culturally (Kulick 1998, Nanda 1990, Reddy 2005, Sinnott 2004, Sullivan and Jackson 1999).[5]

In this essay, rather than treating "transsexualism" or "sex reassignment surgery" as conceptual phenomena about which I might ask a series of ethical or political questions or as an identity category focused around personal experience, I examine SRS as a practice. The study of a practice, Annemarie Mol writes, "locates knowledge primarily in activities, events, buildings, instruments, procedures and so on" (2002, 32). By making this distinction I do not mean to suggest that this—or any other—practice exists apart from the ideas that give it shape. Far less that practice is somehow more real than the forms of knowledge of which it is an enactment. Rather, my focus on practice is a means by which to ground the discourse of transsexual transition in the material activities that surgeons undertake to facilitate its process. Beginning from SRS as a set of material practices can help to make plain the (hetero)normative assumptions that largely constitute notions of the "natural" sexed body and the activities meant to create it.

As a distinct surgical practice, SRS is performed hundreds of times each year in North America alone.[6] While a great deal of attention has been paid to the patients who undergo such surgeries and how such surgico-medical practice might open or close possibilities in terms of politics or personhood, very little has been paid to the procedures and goals that constitute these surgeries and what surgeons are aiming to do in order to change sex.[7] At its most basic, the gist of sex reassignment surgery is easily understood: male sex organs are refashioned into female sex organs, or female sex organs are refashioned into male sex organs. Technical challenges are not the only things that make these operations complex. Before the first incision is made, surgeons must decide what female and male sex organs look like and do, and then must develop surgical techniques in order to (re)produce these characteristics.

SRS is not the only set of surgical procedures that aim to produce "normal" genitalia. Other surgical procedures undertaken to alter the genitals have been the subject of considerable recent debate among physicians, patients and the general public. Most notable have been the examination and interrogation of surgeries performed on infants categorized as "intersexed" (Chase 1998, Fausto-Sterling 2000, Karkazis 2008) and surgeries intended to "enhance" the aesthetics of the female genitals, often referred to as Female Genital Cosmetic Surgery (Braun 2005, 2010). Critical attention to each of these modes of surgery has raised questions about how particular physical and functional characteristics of the genitals come to be defined as pathological, as normal, and as desirable.

Although surgical interventions in intersexed infants have been performed for many years, few people were aware of this practice until Cheryl Chase's now widely known article, "Hermaphrodites With Attitude" appeared in *GLQ* in 1998. Virginia Braun reports that Female Genital Cosmetic Surgery (FGCS) entered the public discourse at roughly the same time, "in the late 1990s and early 2000s" (2010, 1394). The relatively recent awareness of these procedures has led to an examination of genital desirability and surgical intervention through their particular frames, foregrounding questions of choice, consent, and the power of medical and commercial interests in producing bodily norms. The principles that guide the surgical practice of sex reassignment for adult transsexuals have not been held to this kind of critical scrutiny.

Although sex reassignment surgery in adults is still a somewhat contested procedure, the most heated and widely publicized debates about the medical and ethical merits of SRS were settled long ago. The treatment logic that structures SRS and the diagnosis for which it is recognized as a best-practice treatment were established in the 1950s and '60s (though not codified in a professional document until 1979[8]). This treatment logic (a) establishes transsexualism as a *medical* problem; (b) asserts that this problem cannot be addressed through psychotherapy and is therefore only treatable through medico-surgical intervention; (c) posits a relationship between "self" and "body" such that each are fully formed but existing in juxtaposition to each other; (d) asserts that medico-surgical intervention can ameliorate this juxtaposition and; (e) identifies problematic "sex" as a series of bodily properties that can be located, quantified and changed to an opposing model of "normal," thereby producing harmony where there was once discord. Criticisms of these assertions notwithstanding, this logic marks sex reassignment surgery as ontologically distinct from interventions on intersex infants and FGCS. Though there are certainly many important commonalities shared between these modes of surgical intervention, the "body projects" (Shilling 1993) for which they are performed are understood as radically distinct. By this I mean that that the identity project that animates transsexual surgical intervention marks it as fundamentally different from these other cases of surgical genital reconstruction. The distinct status of the transsexual body project has left the practical aspects of sex reassignment surgeries as largely taken for granted. As opposed to the critical interrogation of intersex surgeries and FGCS—organized around questions of what constitutes an attractive and acceptably sexed body—we think we know what happens to a body whose sex is "changed." The supposed fixity and stability of the categories of male and female genital anatomy seem to obviate the issue. It is my contention, however, that while the project of genital sex reassignment relies upon and helps to reproduce these anatomies as stable and fixed, that certainty is not reflected in its practice.

In examining the surgical goals that guide the practice of SRS, I will show just what surgeons have in mind when they aim to produce "natural-looking" or "natural like" genitals. While surgeons make clinical assessments based on the goals they set for themselves, there is broad acknowledgement that critical aspects of surgical outcomes cannot be measured in clinical terms. Indeed, when Brassard was asked what kind of result he was capable of achieving, he made a turn to you and I and framed his response in terms of how we might come into contact with the newly sexed body in question. It is within this future of imagined exchanges that the categories of aesthetics and function can most clearly be seen to collapse into each other.

In constructing and evaluating genitals that do not generate, where does the line between function and aesthetics get drawn? How can what does and does not fit into these categories help us understand the claim that organizes all of this surgical literature and the procedures it describes, namely that the surgeon is able to both recognize and reproduce natural-like genitals that enable patients to *look* and *function* "like natural" males and females?

Method

This essay is concerned with how surgeons write about and represent the goals that animate their work in the operating room. To that end, I base my argument on evidence from two kinds of sources, each of which contributes to an understanding of the norms—both explicit and implicit—that guide surgical sight and surgical practice. My primary resources are surgical texts published in peer-reviewed journals which I selected using three criteria. First, papers must employ the

contemporary best-practice methods in the production of the neogenitals. Rather than focusing on the publication date of the paper I was instead interested in the treatment paradigm it described (the oldest articles date from 1993 except for one from 1976 which I use to demonstrate change in practice over time). Therefore in male-to-female (MTF) operations, all articles on vaginoplasty utilize the inverted penoscrotal skin flap procedure but differ in techniques used to create and/or innervate the neoclitoris. In female-to-male (FTM) operations, articles on phalloplasty utilize free-flap grafts in the production of the phallus but differ in techniques used to create the scrotum. The fact that operations to produce the vagina and phallus[9] are relatively established whereas those that produce the clitoris and scrotum are currently undergoing significant development will be explored. In these, as in nearly all surgeries, there is no solid consensus as to the exact techniques that ought to be employed in every aspect of these procedures. However, all procedures referenced here are currently in use and are named as the preferred method of some surgeons. Secondly, I chose articles that discussed both the functional and the aesthetic aspects of these procedures. Finally, I sought to represent FTM and MTF procedures through examining a roughly even number of articles on each. This essay is not an exhaustive review of surgical literature on this topic. Rather, it is a survey of surgical practice and a critical reading of the principles that surgeons say guide them in that practice.

The other source examined briefly here are ethnographic observations and interviews with surgeons involved in sex reassignment. I have attended multiple presentations and surgical conferences at which SRS procedures were described and discussed. These personal and professional interactions among surgeons help to give depth to the ideas that structure their writings. I open with an ethnographic scene from my work with surgeons who perform SRS. This interaction has been generative for my thinking about the kinds of knowledge—surgical, intimate, subjective—at work in the making of "natural" sexed bodies.

My focus on surgeons and surgical literature is not meant to suggest that surgeons act alone in setting the goals of sex reassignment surgeries. In contrast to some portrayals of trans patients as passive recipients of treatments designed by wholly by doctors (Raymond 1979) or, conversely, of trans patients as manipulating doctors into performing procedures that they might otherwise find objectionable (Hausman 1995), I think it crucial to acknowledge that trans patients frequently collaborate with providers in their medico-surgical treatments. The active voices of patient collaborators are, however, not represented in the expert literatures that guide technical and professional surgical practice. The personal experiences and insights of patients are stripped away in the ostensibly empirical discourses of surgical description that they help to produce. It is, in part, from the omission of these anecdotal and personal forms of knowledge that medicine emerges as a disinterested representation of the natural body. It is this series of assumptions and elisions that I seek to trouble here.

Seeing the object in question

In September 2007, I attended the biannual meeting of the World Professional Association for Transgender Health (WPATH). This group, which had been known as the Harry Benjamin International Gender Dysphoria Association from its founding in 1976 until it changed its name in 2005, brings together a variety of mental, medical, and surgical health care providers and is, as an organization, the worldwide authority on care practices for people known variously as transgender and transsexual. In a surgical workshop on male-to-female genital construction, a well-known surgeon, Dr. Abbott,[10] narrated a high-speed video presentation of his newly developed vaginoplasty procedure. After the presentation, another prominent

American surgeon, Dr. Bailey, commented that the *mons pubis*—the mound of flesh just above the genitals—was malformed in the examples provided. Dr. Abbott replied that as a gynecologist, the *mons* in the post-operative patients looked "pretty good to me," and that he had not had any patients complain about the results of the procedure. Dr. Bailey countered, "I'm sure no one is complaining, but if you take out an anatomy book and compare it to what you've done here, you'll see that it doesn't match."

Dr. Bailey was asserting that there was something that the book could tell all of us that the five-by-eight-foot image of post-operative genitalia projected on the screen at the front of the room was somehow obscuring from view. He claimed to see something in this image that others could not—including the other silent surgeons in the room and indeed, Dr. Abbott's non-complaining patients themselves. Rather than seeing the entire genital complex as whole—which looked "pretty good" to Dr. Abbott—Dr. Bailey suggested that his training and expertise allowed him to view the body with distinct attention for each of its structures. In other words, he saw it *better*. This mode of seeing is itself a surgical technique—perhaps its most vital. Through processes of observation, judgment and examination, this clinical sight produces bodies as objects of control and subsequent intervention (Foucault 1973). The ostensible superiority of Bailey's vision was not left up to subjective determination but was produced through the invocation of a higher authority to which all of us in the audience might make reference not just conceptually but *visually*. There existed an image of the natural form to which we must all defer. Bailey's self-assured pronouncement that he could *see* this form despite its absence from the visual field performatively produced him as an expert who was, at the same time, also a "modest witness" to the truth that inhered in the natural body (Shapin & Schaffer 1989; Haraway 1997). This claim to naturalness constitutes the ideal body as the form to which real living bodies—including the one on the screen—can be compared and names the surgeon as one endowed with the techniques of vision capable of knowing the difference.

Anatomical illustration was the first mode of representing the body with the explicit aim of studying its structure. Early anatomical illustrators (dating back to Vesalius, the founder of "modern anatomy," in the 14th century) were faced with a dilemma: should they aim to produce a representation of a particular body (part) informed by the one before them on the dissection table? Or should they aim to produce an image that shows the body (part) in its ideal and perfect form? This was not a question of the techniques of illustration but was a problem of *how to see* the body. What must be depicted, according to these early anatomists, is the universal body about which universal laws may be derived (Vandam 1997).

In Lorraine Daston and Peter Galison's account of the history of the concept of objectivity in the atlases of natural science, they called this phase of scientific representation, "truth to nature." They write: "For naturalists who sought truth to nature, a faithful image was emphatically not one that depicted exactly what was seen, rather it was a reasoned image" (2007, 98). These reasoned images of human anatomical form base their claims to truth to nature on a Galenic conception of Nature as a force that creates perfection in form and function (Singer 1957, 50). Therefore it is perfection that can and ought to be depicted rather than vulgar variations from it. Thus anatomical illustration, and the anatomy book that is its collection, is both the result of norming—literally removing the outliers—as well as a powerful means by which normal/natural bodies are produced. As Ian Hacking argues, the word and concept of *normal* "became indispensible because it created a way to be objective about human beings. The word is also like a faithful retainer, a voice from the past. It uses a power as old as Aristotle to bridge the fact/value distinction, whispering in your ear that what is normal is also right" (1990, 160).

The ability to see this perfection is a skill that must be developed, as is indeed the ability to see when structures—like the *mons* identified by Dr. Bailey—are imperfect. Sociologist and

scholar of medicine Stefan Hirschauer has described the relation between the patient body and the body of the authoritative anatomical atlas. In Hirschauer's account, this relation is not self-evident but is produced through the order making practice of dissection that marks the early stages of most surgical procedures. In spite of the universal form that the atlas depicts, all surgeons know that individual anatomies are quite variable. Upon opening a body, order must be established through dissection.

> Dissection aims to present organs in the isolating style of an anatomic atlas. The drawings show neatly separated organs; in the patient-body this state must first be produced by isolating them with the knife. Surgeons call this 'exposition' or 'making anatomy' (*Anatomie herstellen*). Whereas, to a layperson, this procedure increasingly disfigures 'the body'—as it is known from everyday life—for the surgeon exposition *creates* 'the body'—as it is known from the anatomy book. (Hirschauer 1991, 301)

This process helps surgeons to understand how a body is made through dissection, and what that body is as an object or series of objects. "Anatomical pictures document products of dissecting labour [*sic*], and thus also provide an idealized account of what has been done. But they also provide a schedule for what is to be done, and what the 'natural object' looks like" (ibid). The particular thus becomes the general. The constitution of the general form is quite clearly a product of disciplined ways of seeing and then acting upon the body.

It is always the case that ideas about what constitutes the "natural" body are not simply reflections of objective facts, but are created in situated practice. A large body of scholarship in the history of medicine as well as feminist and gender studies has demonstrated that shifting ideas about the proper function of the body come to shape claims about how "natural" and "normal" bodies are structured. In other words, ideas about what the body *does* (or does not do) significantly shape what we think the body *is*. Kessler and McKenna made this observation about the gendered body long ago (1978). The overwhelming notion that humans are *either* male *or* female and can be fundamentally understood by their relation to those categories is not just a social reality, it is a scientific and medical one, as well. They write:

> Scientific knowledge does not inform the answer to 'What makes a person either a man or a woman?' Rather it justifies (and appears to give grounds for) the already existing knowledge that a person is either a woman or a man and that there is no problem differentiating between the two. Biological, psychological, and social differences do not lead to our seeing two genders. Our seeing of two genders leads to the 'discovery' of biological, psychological, and social differences. (1978, 163)

Anatomists' sight and description of the body's sexed parts—like all of its other parts—are formed in relation to social and political commitments to ideas about gender (Schiebinger 1987; Laqueur 1992). Butler named this fundamental concept concisely: "If the immutable character of sex is contested, perhaps this construct called 'sex' is as culturally constructed as gender; indeed, perhaps it was always already gender, with the consequence that the distinction between sex and gender turns out to be no distinction at all' (1999, 10).

In examining the goals that guide surgeons' practice in sex reassignment surgery, we can see a material instance in which genital "sex… will be shown to have been gender all along" (Butler 1999, 12). Sex reassignment surgery is a practice in which the genitals—the body part that is the symbolic location of bodily sex and the gender that is assumed to flow from it—are consciously made in a form fundamentally different from the one in which they existed upon entering the operating room. The physical and physiological qualities of the genitals can be measured and assessed by the surgeons at work in their production, but the gender work that those genitals can/might/will/should do, is something that surgeons cannot measure. While the

anatomy book may have helped doctor Bailey argue for what the genitals look like, there is no book that can capture for him the totality of what they ought to do. Instead, what is evident in an examination of surgical literature is that gendered ideas about the genitals' proper form and function do make it into the operating room. "Folk knowledge" about how gendered persons and bodies behave in relation to the specificities of genital forms has an impact on the ways that surgeons—and other physicians—practice medicine (cf. Pliskin 1995). As situated social actors, surgeons' own experiences and expectations of gender animate how they see, understand, and ultimately create the genitals.

Genital form

For both surgeries—male-to-female and female-to-male—the category of "aesthetic results" in surgical literature refers exclusively to the look of the genitals as opposed to other aesthetic considerations such as their textures or smells. It is for this reason that I think it appropriate to equate the "aesthetic" they describe to the rubric of form. Aesthetic goals aim to produce "natural" or "normal" morphological structures in proper proportion and relation to one another, in other words, the body's topography. These collected recommendations indicate what is meant by the ubiquitous phrases "natural looking" and "normal appearing". The general guidelines for the aesthetic construction of the normal are listed in the chart below.

These "natural" forms are not easy to (re)construct. Efforts to produce the "natural" form of the genitals in SRS have marshaled a wide variety of tissues, implants and transplants. It is, of course, a sustained but unmet search for the natural that leads to the introduction, adoption and rejection of particular techniques over time. The threat of the unnatural saturates these texts in the presence of warnings against particular procedures and reports of various kinds of failure. Every technical revision is an acknowledgement that surgical intervention has produced a long and diverse series of unnatural forms. In identifying forms as unnatural—such as hair growing inside the vaginal canal, or the scrotum hanging between the legs instead of in front of them—surgeons not only indicate undesired outcomes, but also narrow the definition of how the natural is constituted. The norm is produced negatively, through exceptions to it.

Desired Aesthetic Results

Common to Both MTF and FTM Surgeries

- Shapes and proportions of genital structures
- Placement on the body
- Example: the phallus should be at the midline (Cheng, et al., 1994)
- Color of skin and mucosal tissue (Cheng, et al., 1994; Karim, et al., 1996)
- Absence or presence of hair bearing skin

MTF-specific

- size and shape of the vaginal opening (or introitus) (Karim, et al., 1996)
- size and shape of the neoclitoris (Giraldo, et al., 2004)
- presence, size and shape of the labia majora and minora (Krege, et al., 2001)
- characteristics of clitoral hooding (Rehman & Melman 1999)
- location of the vaginal cavity

FTM-specific

- size and shape of the phallus (both length and diameter) (Kim et al., 2009: 310)
- color (whether the grafted skin matches the color of skin in the groin region).

- The Belgian team recommends tattooing the entire surface of the neoglans in order to 'imitate' the color difference common to a circumcised penis (Monstrey, et al., 2009)
- a coronal ridge and glanslike structure at the tip of the phallus (Leriche, et al., 2008)
- a sagitally slitted urethtral opening (Hage and De Graaf 1993)
- construction of a foreskin-like structure, depending on whether a circumcised appearance is desired (Hage and De Graff, 1993: 596)[15]
- volume, position, and shape of the neoscrotum (Selvaggi, et al. 2009)

Texts addressing aesthetic results in female-to-male surgeries overwhelmingly focus on the production of the phallus over the scrotum. In their 1993 review of surgical literature on the production of the scrotum, Hage, et al. note that "only a few authors mention creating a scrotum in the female transsexual patient" and of those, "the information given on the technique used is scanty" (914). Reviewers found that literature on female-to-male genital reconstruction was dedicated to efforts to produce the phallus. Selvaggi, et al. note however that, "In the last 15 years, transsexuals have become more demanding, and scrotoplasty has received more attention than before" (2009, 1710). These authors' newly developed technique aims to create a scrotum of desired volume, position and shape, emphasizing that previous techniques looked less like a natural scrotum than the patient's existing labia majora sutured together, which is what they often were. In addition to this problem, the technique produced a scrotum that was positioned between the legs instead of in front of them, which Selvaggi et al. explain evoked an unwelcome "memory" of the patient's female anatomy. In this case, the surgeons' work involves not only creating a scrotum, but one whose aesthetic properties are distinctive to it, effectively erasing its resemblance to the labia. This task is made somewhat complicated because it is the anatomical similarity between the labia and scrotum that make the labia desirable tissue for the scrotum's production in the first place. The labia are the "embryologic counterpart of the scrotum" (ibid 1716) but must be transformed completely in order to be recognizable as one and not the other.

While it is the case that the phallus is much more difficult to surgically construct (Kim et al., 2009), it is also the more highly valued—and defining—aspect of the male anatomy. Because the existing female genitalia do not yield much usable reconstructive tissue, surgeons must harvest tissue from other parts of the body in order to build a viable phallus (Ettner, et al., 2007). Skin, nerves, veins, arteries, cartilage and sometimes bone can be used for this purpose. The grafts used to produce the phallus are typically taken from the forearm, abdomen, or upper thigh. Hirschauer has described the "patient-body" as "a stock of material, some of which is useful, whereas other parts cannot be used and are amputated" (1991, 302). As is often the case in these bodily borrowings, the production of the aesthetic in one location comes at the cost of the unaesthetic or dysfunctional in another. Visible scars frequently mark skin graft donor sites and, in the case of deep tissue transplant, donor site dysfunction is a common concern (Selvaggi, et al., 2006). Felici and Felici have reported that their patients consider the forearm donor site scar "a brand" that undesirably marks them as transsexual (2006, 153).

As Brassard's quote at the opening of this essay indicates, the aesthetic results of male-to-female surgeries yield very good results. These procedures aim to "create a perioneogenital complex as feminine in appearance as possible" (Karim, et al., 1996). The surgical method most commonly used to create the vaginal canal is based on a technique established in 1968 (Goddard, et al., 2007). It was not until 1976 that surgeons made "a more formal attempt" to create an innervated neoclitoris as opposed to a "cosmetic swelling" that was meant to resemble a clitoris (Goddard, et al., 2007, 987). Just as in FTM surgeries that have overwhelmingly focused their attention on the phallus, MTF surgeries were concerned first with the removal of the penis and then later with the production of a vagina, clitoris, and labia minora

and majora. As Kessler and McKenna argued (1978)—in a point that is first reflected in Aristotelian understandings of anatomical differences and is later echoed through Freud, Lacan, Irigaray and others—the presence of a phallus is the single strongest signifier of sex on a body. When a phallus is there, it denotes maleness far more strongly than its absence denotes femaleness. Following this logic, its removal is, therefore, more important than its replacement, especially in relation to a long and varied history of conceiving of the female genitals themselves primarily as an absence or lack (cf. Braun and Wilkinson 2001, 19–20). As the concept and location of sex expands across the body, so too do the indexes of changes required in order accomplish a "change of sex." Thus, "the natural" is an ever-receding concept that one can always work toward, if never quite arrive.

Genital function

As I have noted, the categories of aesthetic and functional results are common to the evaluation of all plastic surgeries. Through plastic and reconstructive interventions, surgeons aim to produce bodies that look and perform naturally though it is not always possible to meet both goals equally. In such cases, priorities have to be set as to which goals—aesthetic or functional—are considered most important, and what can be achieved given technical abilities and limitations. Indeed Braun has noted, "Although a focus on function or aesthetics divides the field of plastic surgery into reconstructive and aesthetic, in reality, the separation is impossible to sustain" (2010, 1398). The idea of the body's form and function as coincident properties—that the body is by definition perfectly built to do exactly what it does—dates back to the earliest philosophies of anatomy espoused by Aristotle and Galen (Hacking 1990, Kuriyama 2007, May 1968, Singer 1957).

The philosophic conception of bodily form and function as one in the same manifestation of perfection is unsettled in the body that requires reconstruction or repair. A body that is improperly formed cannot be put to its proper uses, nor can its proper uses be achieved through any other than perfect form. This teleological scheme would seem to lead to a very narrow and precise notion of the relation between aesthetics and function, except that the concept of function itself is manifold. It is frequently noted that in addition to medical benefits, surgical intervention can have many psychological benefits for patients. The benefits of enhanced self-esteem or the personal peace that comes from an integrated and socially legible body are used to justify many surgical procedures. Patients' desires to feel at home in their bodies drive the narratives and practice of cosmetic surgery (Davis 1995, 2003; Huss-Ashmore 2000) and radical weight loss surgeries (Throsby 2008), for example. While there are significant differences in the histories, diagnostic rationales and political stakes between SRS and these other reconstructive procedures, they share the underlying conception that the body's surfaces are linked in complex and fundamental ways to the person who resides within that body (Gilman 1998). Whereas facilitation of the harmony of the "inside" and "outside" may be understood as a desire for kind of *social function* enabled by a surgically altered body, this kind of function is not one that surgeons can measure. And it is not what they mean when they assess the functions of the genitals produced in SRS, even though it is a life-altering change in *social function* that leads most patients to seek these operations.

When surgeons speak about and write about function, it is a question of bodily activity. Neogenitals must not only *look like* but must also *act like* natural genitals. It is in looking like and acting like that reconstructed bodies fulfill expectations of bodily integrity and help produce those bodies and the persons who occupy them as legible social actors (Serlin 2004). Because the genitals must do things, simply looking "natural" is not enough. We can

read the functional outcomes that surgeons strive for as indications of what "natural" genitals do. In both sets of operations, functional outcomes are grouped into two subsets: urinary and sexual. Urinary goals include the minimum requirement that patients should be able to control their bladder and that the neomeatus (the newly built opening through which urine leaves the body) should be unobstructed. These goals also prescribe the bodily position of urination specific to each sex. Thus a desirable urinary outcome allows male-to-female patients to urinate in a sitting position (Karim et al., 1996), and female-to-male patients to urinate while standing upright (Hage and De Graaf 1993, Kim, et al., 2009).[11]

While I have not found texts that feature photographs of male-to-female patients urinating post-operatively, I have found several texts that include photographs of female-to-male patients urinating. Captions emphasize the masculinity of the act by stating, "The patient voids with a forceful stream" (Cheng 1994, 1076) and, "The patient is able to stand to void with a forceful stream" (Kim et al., 2009, 314). In one such article, a photograph depicts the patient standing in front of a tiled wall at a public urinal, boxer shorts around his knees and "voiding with a good urinary stream" (Cheng 1994,1077). This photo stands in sharp contrast to the clinically antiseptic character of photographic illustrations typically included in these texts and is, I argue, an important instance of the ways in which the social future of the genitals becomes a part of their construction. The capacity to perform at the public urinal, to be undetected by those who formulate knowledge about the male genitals in this social scene, is significantly constitutive of the urinary function. I will return to this idea of properly gendered sociality as anatomical function in a moment.

Sexual function goals of both neovaginas and neophalluses are primarily structured around futures of heterosexual penetrative intercourse. These imaginations of the sexual futures of the patient's body are, as a result, not in reference to the patient's body alone. The sexual activity described in these texts assumes the presence of another body, making sexual function an essentially social one. Though some texts include and evaluate masturbation as a form of sexual activity, the majority of texts that report the quality of sexual function after surgery make reference to patients' "sexual partners" and let "intercourse" stand for sexual activity. With no concern for reproductivity, the focus on penetrative intercourse reflects a set of heterosexist assumptions about what sex is and what functioning bodies must be able to accomplish in order to be counted as sexual ones. To the extent that this focus also reflects the explicit desire of patients, we can, following Geertz (1973), recognize the powerful ways in which heterosexual penetrative intercourse becomes both a *model of* and a *model for* the naturally sexed body.[12]

Penetrative intercourse is presented in these texts as the self-evident constitution of natural sexual activity. As such, the function of the neovagina is in its ability to accommodate intercourse. It does so by having an unobstructed and elastic opening, being of "adequate size" and by being at least moist, but ideally self-lubricating. The quality of self-lubrication is sometimes enabled by transplanting tissue from the rectosigmoid colon to line the vaginal canal. This tissue is desirable because it provides added length and self-lubricating properties to the neovagina. Added length is considered an advantage (Karim, et al., 1996), though I have found no explicit discussion of why a deeper vagina is particularly advantageous or desirable. Here, one recalls the "stud" factor (Shimizu 2007, 179) that may be invoked in a vagina that is able to—and in fact *built* to—accommodate penetration by an unusually large phallus.

The neovagina's activity is passive: it accommodates and must make room for an imagined phallus, the dimensions of which constitute the neovagina's recommended size (its "depth should be at least 10 cm and its diameter should be 30 mm" (Karim 1996)). The space of the vaginal cavity (or "vaginal vault") is typically kept open after surgery through the use of a medical dilator. Rather than using a dilator, Karim et al., "advise applying a dildo for only

15 min a day" (1996, 671). Defined in medical terms as "An object that is shaped like and is used as a substitute for an erect penis" (American Heritage Stedman's Medical Dictionary 1995), the dildo anticipates the penis for which it stands as a substitute. Echoing Freud's assertion that, "The value of the vagina is that it functions as an abode for the penis," (Rocah 2010, 131) Irigaray described the vagina as, "The negative, the underside, the reverse of the only visible and morphologically designatable organ… the penis" (1985:26). In these surgical texts, the "adequacy" of the vagina is figured in these terms, as the reverse of and ultimate place for a penis (cf. Braun and Wilkinson 2001, 19–21).

The sexual function of the neophallus is defined by its ability to "obtain rigidity sufficient for penetration." Being able to have "normal sexual intercourse with penetration" (Monstrey et al., 2009, 516) is what constitutes, "Being able to have sexual intercourse like a natural male" (Fang, et al., 1999, 271). The achievement of rigidity in the neophallus has proven exceedingly difficult. Surgeons have used a wide variety of implants—some that allow the phallus to be bent into multiple positions while always somewhat rigid, others that can be inflated when an erection is desired and deflated when it is not, others that have included the transplant of cartilage and bone material from elsewhere in the patient's body—none of which have emerged as unproblematic solutions. Just as a deeper vagina is presented as a self-evident good, so too is a larger phallus. Felici and Felici (2006) advocate the use of a thigh flap in phalloplasty because it yields a larger flap than the typical forearm donor site. In addition to avoiding a visible scar, the thigh flap enables the construction of a larger phallus, a value assumed by the authors.

These texts include sexual imaginaries that do not fit neatly into either aesthetic or functional classifications. Though surgeons agree that the ability to perceive sexual stimulation is an important genital function, *how* it is perceived is an open question. For lack of an ability to quantify sensation, a turn to topography is made again. Sensation is termed "erogenous" if it is felt through the ilioinguinal nerve—the major nerve that innervates the genital structures in both male and female bodies. Microsurgical techniques are used to connect nerves from grafted tissue onto the ilioinguinal nerve, thus allowing what surgeons take to be analogous forms of sensation. This is a topography of pleasure—a mappable means of measuring sensation that is named by its location and nerve pathway. Efforts to produce this sensation demonstrate that in addition to producing properly gendered men and women through public and private interaction, the nonreproductive genitals must also produce proper forms of gendered pleasure.

Though it has been suggested that the glans penis be relocated to the posterior of the neovagina (in the position of the cervix) in MTF vaginoplasty (Malloy et al., 1976), it is now widely recognized that the densely innervated tissue of the glans penis should be used to create a neoclitoris that is the primary site of sexual sensation, ideally allowing patients to reach orgasm. This shift in perspective reflects advances in microsurgical techniques, as well as shifts in ideas about how the female body should experience pleasure. Though, as Kim et al. note: "The female orgasm is essentially different to that of the male orgasm. While the male orgasm is achieved by external ejaculation, the female orgasm is achieved through internal sensation" (2009, 316). In marking this distinction—simplified though it may be—doctors note that MTFs will continue to have "male orgasms" enabled through the sensation perceived by the neoclitoris on the outside of their bodies. FTMs, by extension, will continue to have "female orgasms" though their achievement is more mediated, anatomically speaking. Thus, while the location and form of stimulation that ultimately lead to orgasm may be altered through these surgical procedures, the physiology of orgasm as a distinctly gendered process remains. The neo-genitals, even when radically reshaped, retain essential structural components such that the aesthetics of the new body mask the functions of the old. The tension

between depth and surface changes is made explicit in efforts to produce particular forms of sexual function. When looking right and doing right cannot happen together, priorities must be made.

Whereas the reconstructed female genitals enable differently located "erogenous *sensitivity*," the reconstructed male genitals enable "erogenous *sensibility*." In other words, the neophallus cannot feel erogenous stimulation, but it can perceive it. In order to imitate "natural" sexual stimulation (which unquestionably concentrates on the phallus as its central location), the clitoris is preserved in the female-to-male patient and "buried" beneath the base of the phallus (Monstrey et al. 2009) or placed in its "mid-portion" (Kim et al. 2009, 319), such that pressure and manipulation of the neophallus stimulates the intact clitoris beneath it. In this case, notions of the natural are structured by imaginations of natural sexual activity, rather than bodily topography. The phallus must be the site of sexual action, even though it is not the site of sensation. These kinds of recommendations reveal yet another series of ways in which imaginations of what constitutes natural sexual interactions become incorporated into surgical practice. Here too it is not the genitals themselves that are at stake, instead it what is produced by their unremarkableness: namely, females and males whose bodies attest to an original (read: non-constructed) origin.

Reading the sociality of the genitals

The categories of aesthetic and functional results are, quite clearly, already blurred. For example, while the shape of the vaginal opening (or introitus) is an aesthetic consideration, the measure of its "adequacy," namely to accommodate penetrational intercourse, is included under the rubric of function. While the question of form following function or vice versa is one way that we might deconstruct and trouble the very materiality of the body as others have instructively done (c.f. Butler 1999, Harraway 1991), I want to revisit Brassard's quote from the opening of this paper to think through some possible other reasons for the collapse of these categories. Brassard claimed that his vaginoplasty results could fool woman, man, and doctor. I argued that this statement invoked gendered and clinical ways of apprehending the body and pronounced the surgeon's ability to "fool" them all.

Let us imagine first, the situations in which the genitals are called upon to fool. When are they seen by men, women, and doctors? Painful as it is to state the obvious, genitals are not thumbs. By this I mean that they are not body parts that are seen and engaged in casual social interaction. They are typically visible in situations marked as outside of ordinary social contact: the doctor's office, the locker room, the restroom, the domestic space, the sexual exchange. The revelatory nature of these spaces is part of what makes them out of the ordinary. As I argued above, when the genitals are not making babies, they are making lots of other things. Not reducible to either aesthetics or function, but constitutive of them both, these other things show up in surgical texts in the form of imagined futures of social and sexual engagement. One example of such a social futurity was in the consideration of appropriately gendered bodily practices while urinating. Whether one sits, stands or lies sideways while urinating has nothing to do with the function of the urinary system. Instead it is about the comportment of gender at the level of the individual as well as in the sites of social gendering. The photo I described was not just of a female-to-male patient urinating while standing but doing so in a public restroom.

Monstrey, et al. offer another such example when they write, "The cosmetic outcome of a phalloplasty procedure… is a subjective determination, but the ability of most FTM transsexuals to shower with other men [or 'to go to the sauna' (2009, 510)] is the usual cosmetic barometer" (2007, 155). The ubiquitous locker room scene. The ability of this scene to act as a

barometer assumes first that men evaluate each other's genitals in shared spaces of public nudity, and second that if something does not look right, there will be an immediate and visible reaction. By offering us this standard, Monstrey places the ratification of genital form not within the realm of the surgical, but within the realm of the gendered social. Moreover, when the reconstructed genitals do not cause a commotion in the locker room, it is not phallusness that is produced, but rather maleness itself that is attributed synechdochically through the phallus (Bordo 1999; Groz 1994; Potts 2001). "The penis stands in for and up for the man," (Potts 2000, 85), constituting him both symbolically and practically. As I noted above in emphasizing the importance of removing the penis in MTF surgeries, it is the fact of its presence in the case of the post-phalloplasty FTM that enacts his maleness. This is a function of form that cannot be captured through "aesthetic" and "functional" outcomes but whose felicity is vital to the project of SRS.

The imagined interactions of men and women (via the phallus and vulva/vagina) are social as well as sexual. Monstrey, et al. subtitle a section of their text, "An Aesthetically Pleasing Phallus" (2007, 155). Karim, et al. aim to produce an "appealing vulva" (1996). Hage et al. work toward an "aesthetically appealing neophallus" (1993a, 157), and external genitalia with 'an aesthetically appealing look' (1993b, 323). Whereas elsewhere the language of aesthetic acceptability (Gilbert, et al. 1987, 129) evokes the patient's and perhaps the surgeon's judgments of the post-operative results, here the language of "appeal" powerfully calls up the gaze of another who can stand in a relation of desire for the genitals. In what situation and to whom does a phallus or a vulva appeal? This is certainly not a question of topography. More than a description of the body's shapes and structures, genital appeal turns outward to an audience. Desirability and attraction are not properties of the body itself but are intersubjective dynamics shaped by a host of social realities. Reading these aspects of social life as anatomical properties literally acts to suture notions of gender into the materiality of sex.

As you have likely noticed, all of the social scenes I have described are in reference to male bodies and hyper-masculinized sites of gender production. The asymmetry of my examples reflects that of the literature in question. So what might this imagined lack of public interaction tell us about the imagined social life of the female genitals? It is worth noting two related points briefly here. The first is that as Dr. Brassard asserted, the state of surgical practice is such that MTF surgeries can potentially produce excellent aesthetic results. By this I mean that the neogenitals produced through these procedures "look natural." Neophalluses, however, are another matter. Not only are the male neogenitals more visible to casual observation, but their construction yields less favorable aesthetic results. Their visibility and typically less "natural" results make social reaction to them more critical, perhaps. The second point to make in relation to the representational asymmetry is that it is not that surgeons imagine female genitals to have no social life but rather that it is imagined to take place within the realm of the private and the sexual. In other words, surgeons do not write about locker rooms, bathrooms and public showers when describing the evaluation of favorable results in MTF surgery. This kind of asymmetry demonstrates that gendered ideas about the social life of male and female bodies are actively engaged in their surgical production. If a "good" surgical result is determined, in part, by the ability of a body to effectively carry a person through his or her daily life, then ideas about how that life is constituted are extremely important.

Conclusion

The philosophic conception of bodily form and function as one in the same manifestation of perfection is unsettled in the body that requires reconstruction or repair. In determining what

the "natural" genitals look like and what their functions ought to be when reproductivity is not on the table, surgeons look to authoritative depictions of the body for questions of form, but have no clinical means by which to assess the question of the body's *social* function. The various technical means used to produce unremarkable genital sexual interaction as well as those that displace their evaluation into gendered social realms—such as the locker room or bathroom—reveal the inherent bodily signification of the genitals that cannot be captured by the language of "aesthetics" and "function" that surgeons use to assess outcomes. As icons of sexed identity, the genitals signify in excess of any distinctly surgical form of knowledge. In the displacement of the surgical criterion from the topographic realm into the social, the presence and character of these future imaginaries demonstrates that surgeons are not simply attempting to construct objects that look or function like penises or vaginas. Rather, the inclusion of these scenes and concerns over the sensory makes it clear that they aim to produce objects whose unremarked visibility and assessment in highly gendered—and somewhat hackneyed—scenes will produce unremarked men and women.

What I hope to have made clear here is that sex reassignment surgery is not a self-evident practice organized by a singular conception of genital anatomy. More than modest witnesses who simply work to understand and reproduce the structures and functions of the sex organs, surgeons involved in sex reassignment work with and within understandings of the gendered body—including those of their patients—that impact both how they see and thus how they ultimately reconstruct the body on the operating room table. The variability in surgical priorities that results from the differential play of social forces and gendered ideals makes it clear that while the concept of genital "sex change" may seem straight forward, its practice is not.

Of course, the contested status of "right" genital form and function is not only a problem for those people who undergo sex reassignment surgery. Important research on FGCS (Braun 2005, 2010), intersex surgeries (Chase 1998, Karkazis 2008), the medical management of male "impotence" (Marshall 2002, Potts 2000), and ongoing debates about the role and impact of circumcision (Silverman 2004) for example, demonstrates the ways in which gendered understandings of anatomical structures and functions work across domains of medico-surgical knowledge. As the stakes (and consequences) of what is normal, what is natural, what is desirable, and what is desired extend far beyond the walls of the clinic, they create newer and ever more narrow versions of the *right body* to which medical interventions must appeal, and from which they gain purchase as forms of care and of cure.

Endnotes

1 I would like to thank Cori Hayden, Juana Maria Rodriguez and an anonymous reviewer for their helpful comments on earlier drafts of this paper.

2 This is Brassard's own estimate as reported on the same program.

3 This surgery is referred to by many different names, each of which carries distinct political stakes. Other than SRS, the two most common terms used are Gender Reassignment Surgery (GRS) and Gender Affirmation Surgery (GAS). Ettner, et al., differentiate SRS from GRS (and by extension GAS) by explaining that SRS typically deals with the genitals while there are many other surgical interventions—such as the creation or removal of breasts, or the restructuring of the face—that have a greater impact in patients' gender attribution than do the genitals (2007:90). Though I think the implied substantive distinction between sex and gender in this formulation could use some

productive troubling, I am adopting their line here. Because this essay focuses exclusively on the genitals, I use the term SRS.

4 The history of transsexualism in the United States is not one of ever-greater acceptance over time. This is especially true in the troubled relationship between feminists and trans scholars. Early feminist objections to transsexualism, usually represented by Raymond (1979), have taken new form in the post *Gender Trouble* milieu. See especially Halberstam (1994) and in response Prosser (1995).

5 For a critique of the appropriation of global forms of gender variance under the rubric of 'transgenderism' see Towle & Morgan (2002).

6 There are no official records of the frequency of SRS in North America. This estimate is based on several North American surgeons' self-reported numbers.

7 Kotula (2002) is a notable exception.

8 The seventh edition of the Standards of Care were published in 2011.

9 Whereas the vagina produced in SRS is called a neovagina, the penis produced in SRS is called a phallus. 'Phalloplasty' is the surgical term used to describe most all reconstructive surgeries of the penis, whether in transmen or non-transmen (although the term 'penoplasty' has also been used to describe procedures to correct 'burried penis' in infants and 'enhancement' surgeries of the penis). This appellation suggests that vaginas can be surgically constructed but penises cannot. Unable to meet the necessary and sufficient standards of the penis, it is the phallus—the symbolic representation of a penis—that is surgically achievable

10 Abbott and Bailey are pseudonyms.

11 The emphasis placed on urinating while standing is not universal among female-to-male patients. A German FTM who had SRS in Denmark characterized the preoccupation with standing while urinating as a distinctly American concern (interview with the author 2009). The national origin of surgical literature does not present a difference in term of this emphasis, however.

12 Thanks to Xochitl Marsilli-Vargas for calling my attention to this useful tool for thinking of the work of symbols.

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